Diesel Alternatives Workshop

SIERRA CLUB

Goal: Find the Best Fit Solutions

1. Many options beyond just whether to energize
2. Maximizing the benefits → many considerations
3. Available tools

The Commission needs to evaluate the technological solutions that have the best benefit to cost value with appropriate weight given to all relevant factors, including:

- Tradeoffs between full grid solutions (eliminating diesel) and partial solutions (reducing diesel
- Tradeoffs between temporary and long term solutions
- Ratepayer value
- Customer benefits
- Social benefits
- Environmental impacts
- Coordinated policy goals

2019 Generator Usage

CARB studied and quantified customer generator usage during PSPS events

- CARB estimated that customers used ~125,000 backup generators during October alone.
- CARB estimates each generator ran an average of 50 hours.
- They produced PM emissions roughly equivalent to 29,000 heavy duty diesel trucks running for one month.

→ Every solution that can be deployed will decrease the need for customers to run these backup generators, preventing criteria pollutants that have no safe threshold.
→ Incentivizing BTM preferred resources would further decrease the need for gas or diesel generators.

The Wide Range of Options

For safe-to-energize sections of the grid, there are many options, each with tradeoffs

- Doing nothing → avoidable power outages, health, social, and economic impacts, and customers run backup generators
- Diesel generation at substations
- Temporary solutions
- Permanent partial solutions + reduced diesel → reduces the capacity and generation needs from diesel backup, year-round costs/benefits
- Permanent total solutions → eliminates need for diesel backup, year-round costs/benefits

Challenge Objectives

Fully account for costs, benefits, and the long term

- **Maximize the benefits to customers in safe-to-energize areas subject to transmission outages.**
  - Requires a full cost and benefit accounting: ratepayer, customers, social, public health, environmental, economic, and equity impacts.
  - Short-term and long-term costs and benefits

- **Reduce the need to reserve a large fleet of diesel generation for the purpose of providing substation-scale power in 2021.**
  - Go beyond short term planning, incorporate goals beyond just 2021
  - Partial solutions are worthwhile

Minimizing Costs

Ratepayer and Economic Costs

- Cost of power outages
- Installation and operational costs
- Economic cost of public health impacts associated with marginal emissions

Available tools to consider economic costs include:

- CPUC Avoided Cost Calculator - for ratepayer impact
- NREL's Interruption Cost Estimator (ICE) Tool - to estimate customer and economic impact of outages
- EPA's Co-Benefits Risk Assessment (COBRA) Tool - to estimate the economic impacts of marginal emissions, including physical health costs, lost work days, and outdoor activity restrictions
- Economic investment in local projects
- For permanent resources: possibility of year-round economic impacts

Minimizing Costs

Health Costs and Equity Concerns

- Consider pollutant emissions and associated health and equity impacts
- Equity impacts need to be considered, particularly for communities that are already vulnerable as disadvantaged communities, low-income communities, and medical equipment dependence

Available tools include:

- CalEnviroScreen 3.0 to show disadvantaged communities and communities already overburdened by pollution
- EPA COBRA Tool

Maximizing Benefits

Environmental Concerns: Emissions Impacts, Building to 2030 and 2045

- Climate goals require moving away from diesel and other emitting resources towards storage and preferred resources.
- SB 350 and SB 100 both require significant development of storage and renewables; building toward those investments for resiliency benefits could improve ratepayer benefits and avoid the need to double-procure capacity.
- The installation of new non-preferred resources will act as a barrier to later installing storage and preferred resources in the same location.
- The fuel source matters. Gas-reliant technologies rely on a process of extraction and delivery that leak methane, posing 20x the warming potential of carbon emissions..

Additional Tools:

- See 2019-2020 IRP Preliminary Results Workshop Slides (Oct. 8, 2019) available at https://www.cpuc.ca.gov/uploadedFiles/CPUCWebsite/Content/UtilitiesIndustries/Energy/EnergyPrograms/ElectPowerProcurementGeneration/irp/2018/2019%20IRP%20Preliminary%20Results%20Workshop%20Slides.pdf

Reducing Diesel Need for 2021

And keeping future years in mind

- Go beyond short term planning, incorporate goals beyond just 2021.
- Every year of readiness will result in additional protections for ratepayers, so consider resources that will require more lead time (for example, resources that require customer education and/or participation like energy efficiency, emergency demand response programs, etc.)
- Partial solutions are worthwhile. Incremental capacity or load reduction is progress to offset backup and diesel generation--both in capacity and in total diesel generation.
- Load reduction resources need particular attention: demand response programs, energy efficiency and emergency conservation measures. Anything that shaves load will have direct reductions in need for diesel capacity and operation.
- Zero emission BTM resources will also reduce substation level demand and FOM resource needs.

Questions for Every Proposal

- What are the total benefits and costs of each solution?
  - Impacts during PSPS events, during normal operations, and for how long?
  - Will this investment contribute to long-term goals for climate, equity?
  - Consider each category of costs & benefits - health, equity, environmental, ratepayer, and customer considerations
- How much will this reduce needed diesel capacity and diesel generation?
  - Every kilowatt-hour matters, whether in-front-of or behind-the-meter
  - IFOM and BTM resources on a reenergized grid decrease the diesel need
  - Preferred BTM resources on a deenergized grid decrease customer generators